1. (THREE TIMES AMENDED) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

exposing the detection surface to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting the gas phase material from a change in conductivity between the first and second electrodes with the detector; and

generating an alert based on the detection of the gas phase material;

wherein the detection surface is selected such that the electrically conductive film comprising ruthenium preferentially deposits on the detection surface.

6. (THREE TIMES AMENDED) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes, wherein the detection surface is not electrically conductive;

exposing the sensor to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting electrical conductivity of the electrically conductive film between the first and second electrodes with the detector; and

generating an alert based on the detection of the electrical conductivity of the electrically conductive film;

wherein the detection surface is selected such that the electrically conductive film comprising ruthenium preferentially deposits on the detection surface.

10. (THREE TIMES AMENDED) A method of detecting a gas phase material comprising:

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providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

heating the detection surface above ambient temperature;

exposing the detection surface to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting the electrically conductive film comprising ruthenium from a change in conductivity between the first and second electrodes with the detector; and

generating an alert based on the detection of the electrically conductive film comprising ruthenium;

wherein the detection surface is selected such that the electrically conductive film comprising ruthenium preferentially deposits on the detection surface.

12. (THREE TIMES AMENDED) A sensor for detecting a gas phase material comprising ruthenium in an environment, the detector comprising:

first and second electrodes;

a detection surface extending between the first electrode and the second electrode, wherein the detection surface comprises a material on which an electrically conductive film comprising ruthenium preferentially deposits from the gas phase material comprising ruthenium; and

a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when the electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes.

17. (THREE TIMES AMENDED) A sensor for detecting a gas phase material comprising ruthenium in an environment, the detector comprising:

first and second electrodes;

a detection surface extending between the first electrode and the second electrode, wherein the detection surface comprises a material on which an electrically conductive film comprising ruthenium preferentially deposits from the gas phase material comprising ruthenium;

a heater capable of providing thermal energy to the detection surface; and

a detector measuring electrical conductivity between the first and second electrodes, where the detector generates an alert when the electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes.

36. (NEW) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

exposing the detection surface to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting the gas phase material from a change in conductivity between the first and second electrodes with the detector while exposing the detection surface to the gas phase material; and

generating an alert based on the detection of the gas phase material;

wherein the detection surface is selected such that the electrically conductive film comprising ruthenium preferentially deposits on the detection surface.

37. (NEW) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes, wherein the detection surface is not electrically conductive;

exposing the sensor to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting electrical conductivity of the electrically conductive film between the first and second electrodes with the detector while exposing the detection surface to the gas phase material; and

generating an alert based on the detection of the electrical conductivity of the electrically conductive film;

wherein the detection surface is selected such that the electrically conductive film comprising ruthenium preferentially deposits on the detection surface.

38. (NEW) A method of detecting a gas phase material comprising:

providing a sensor comprising first and second electrodes, a detection surface extending between the first electrode and the second electrode, and a detector operatively connected to the first and second electrodes;

heating the detection surface above ambient temperature;

exposing the detection surface to a gas phase material comprising ruthenium, wherein an electrically conductive film comprising ruthenium forms on the detection surface between the first and second electrodes;

detecting the electrically conductive film comprising ruthenium from a change in conductivity between the first and second electrodes with the detector while exposing the detection surface to the gas phase material; and

generating an alert based on the detection of the electrically conductive film comprising ruthenium;

wherein the detection surface is selected such that the electrically conductive film comprising ruthenium preferentially deposits on the detection surface.